Australian Bureau of Statistics

6102.0 - Labour Statistics: Concepts, Sources and Methods, 2001
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INTRODUCTION

27.1 The Survey of Average Weekly Earnings has been conducted quarterly since 1981. The purpose of the survey is to measure average gross weekly earnings associated with employee jobs in Australia. Estimates of average weekly earnings, and changes in average weekly earnings, are produced each quarter. Estimates are used in commercial contracts, and in Commonwealth, State and Territory legislation. The quarterly measure of change in average earnings levels is often used as an indicator of change in underlying wage rates, for economic policy analysis. However, the ABS considers its Wage Cost Index to be the preferred indicator of changes in wage rates.

SURVEY OUTPUT

27.2 Data are published quarterly, in **Average Weekly Earnings, Australia** (Cat. no. 6302.0). More detailed data are available on request. Up until the December quarter 2000, preliminary results were released three weeks earlier in **Average Weekly Earnings, Australia, Preliminary** (Cat. no. 6301.0).

27.3 The population of interest is civilian employee jobs, for which payments were made in the survey reference period, excluding employee jobs based outside Australia. Three main series are published:

- Average weekly total earnings for full-time adult employee jobs (comprising ordinary time earnings plus overtime - refer to Chapter 11 for further information on ordinary time, overtime and other components of earnings).

- Average weekly total earnings for all employee jobs.

- Average weekly ordinary time earnings for full-time adult employee jobs (commonly referred to as AWOTE).

27.4 Estimates of the percentage change in average earnings (from both the previous quarter and from the corresponding quarter of the previous year) are published for each series. Estimates from the survey are cross-classified by sex, State/Territory, industry and sector.

27.5 Estimates are published on the following bases: original; seasonally adjusted; and trend (see Chapter 16 for further explanation of original, seasonally adjusted and trend estimates). Seasonally adjusted and trend estimates are available by Australia and State/Territory for each of the three main series listed above.

27.6 Data collected in the survey are compiled according to concepts and definitions outlined in Chapter 4 (employees) and Chapter 11 (earnings).

SCOPE

27.7 The scope of the survey is restricted to employing businesses (MUSs). In addition, the standard scope exclusions for ABS labour-related business surveys (outlined in Chapter 23) apply to this survey.

SURVEY METHODOLOGY

27.8 Details of numbers of employees (full-time adults and other employees), total gross weekly earnings (for full-time adults and other employees), and weekly overtime earnings of full-time adults are obtained on a quarterly basis from selected businesses, using a mail-out/mail-back collection methodology. Data for some Commonwealth and Territory Government organisations are collected electronically on a fortnightly basis from a centralised pay system. A small number of large private businesses also provide data electronically.

27.9 The survey reference period is the last pay period ending on or before the third Friday in the middle month of the quarter. Businesses are asked to estimate one week's proportion of total gross earnings and full-time adult overtime earnings if their payroll is not weekly.

27.10 Businesses which do not mail back their completed questionnaire within a reasonable period of time after the survey reference period are followed up by mail and then phone if necessary. Final response rates for the Survey of Average Weekly Earnings over the 1998-99 financial year averaged 98%.

SAMPLE DESIGN

27.11 The selection unit for the survey is the Management Unit/State (MUS). The collection and reporting units used in the survey usually correspond to the selection unit. However, where the MUS is unable to provide information required for the survey, it may be split into a number of 'reporting units'. For further information on statistical units used in ABS business surveys refer to Chapter 23.

27.12 A probability sample of MUSs (employing businesses) is drawn from the ABS Business Register using the process outlined in Chapter 23. Variables used to stratify the survey frame each quarter are:

- State or Territory;

- sector - the public and private sectors are stratified separately;

- industry - within the private sector, industry stratification is based on ANZSIC division; within the public sector ANZSIC divisions are aggregated to form three broad industry groupings; and

- employment size - the ranges used vary between States and Territories, sectors and industries.

26.13 Strata on the survey frame that are completely enumerated include those containing MUSs with benchmark employment greater than a set cutoff (this cutoff will vary for different States/Territories) and strata with a very small number of MUSs. Strata which are completely

enumerated because they contain a low number of MUSs may become sampled strata if the number of MUSs in those strata increases sufficiently.

27.14 In addition to constraints outlined in Chapter 23, sample selection is constrained by the need to ensure that there is minimum overlap with other labour-related business surveys and with non-labour related business surveys.

SAMPLE SIZE AND ALLOCATION

27.15 Approximately 4,700 MUSs are selected in the sample to yield a live sample of approximately 4,000 MUSs.

27.16 The sample is allocated optimally across sampled strata using a technique designed to minimise the variance of average weekly earnings estimates at both the national and State/Territory level.

SAMPLE ROTATION

27.17 The sample is updated each quarter to reflect changes in the ABS Business Register. Approximately 8% of the sample selected from the non-completely enumerated strata is replaced each quarter. This process is called sample rotation (see Chapter 23 for further explanation).

27.18 Sample rotation is implemented for the majority of sampled strata, but is not implemented where the population of a stratum is so small that units rotating out of the sample would be rotated back in after only a short interval.

ESTIMATION

27.19 Estimates of total weekly earnings and number of employee jobs are computed for various combinations of State/Territory, sector and industry. Average weekly earnings measures are the quotient of the respective earnings and employment measures. Ratio estimation is used in all sampled strata, except in cases where there is a large proportion of units with zero benchmark employment, in which case number-raised estimation is used.

27.20 In both completely enumerated and sampled strata an automatic imputation procedure is used for units not responding, by applying imputed growth rates to the most recently reported employment and earnings data for these units, provided that data have been reported in either of the two previous quarters. This is referred to as Beta imputation. Otherwise, the Live Respondent Mean method is used to impute for missing data items.

27.21 Significance editing was introduced in September 1992. This technique means that editing is only performed on those survey values which will significantly impact on the survey estimate if left unaltered.

27.22 Survey outliers are handled by using the 'surprise outlier' technique.

27.23 New Business Provisions were introduced in May 1999. Adjustments are made to survey estimates each quarter to allow for births and deaths of businesses that have occurred up to the end of the survey reference period but which are not reflected on the survey frame.

27.24 For further information on estimation methods used in ABS Business Surveys, refer to

TIME SERIES ESTIMATES

27.25 Both seasonally adjusted and trend estimates are produced for key series from this survey.

Seasonal adjustment

27.26 Seasonally adjusted estimates were introduced from September quarter 1983. The seasonal factors are reviewed annually to take account of each additional year's original data. The review takes place in time for the results to be incorporated in each February issue of **Average Weekly Earnings, Australia** (Cat. no. 6302.0).

Trend estimates

27.27 Trend estimates were introduced from August quarter 1993.

RELIABILITY OF THE ESTIMATES

27.28 Estimates from the survey are subject to both sampling and non-sampling error. The relative standard errors of survey estimates are published in **Average Weekly Earnings, Australia** (Cat. no. 6302.0).

27.29 The 'jack-knife' approach is used to calculate estimates of variance for this survey. For further information on the jack-knife technique for estimating variances, or on sampling and non-sampling errors, refer to Chapter 16.

DATA COMPARABILITY OVER TIME

27.30 In order to provide a high degree of consistency and comparability over time, changes to survey methods, survey concepts, data item definitions, frequency of collection, and methods of time series analysis, are made as infrequently as possible. Significant changes have included:

1941 Average weekly earnings series commenced, based principally on information from payroll tax returns.
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1981 Sample survey of businesses introduced using the ABS Business Register.
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1983 Survey sample increased, with selection from an upgraded ABS Business Register. Some changes to survey definitions. Seasonally adjusted estimates introduced.
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1992 First data collected electronically from selected survey respondents; introduction of significance editing.
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1993 Trend estimates introduced.
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1994 Survey redesigned on an ANZSIC industry basis. Rotation rate for rotating sampled strata increased from 5% to 8.33%.
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1997 Jack-knife variance estimation introduced. Number raised estimation introduced for strata with over 20% of units having zero benchmark employment.
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1999 Introduction of Live Respondent Mean imputation for the sampled sector, and the new business provisions adjustment for the private sector.
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2000 Introduction of Beta imputation for the sampled sector.
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2001 Publication of preliminary estimates discontinued.

FURTHER INFORMATION

27.31 For further details contact the Assistant Director, Labour Employer Surveys Section, on Perth (08) 9360 5245.

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